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Market and Financial Analysis of a 1,200-foot Tower in New Orleans

Harrison Price Company

MARKET AND FINANCIAL ANALYSIS FOR A 1,200 FOOT TOWER IN NEW ORLEANS

Prepared for:

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Section I

INTRODUCTION

The Tower of New Orleans, Inc. has been organized for the express purpose of developing and operating a major multi-purpose tower in downtown New Orleans. The tower is scheduled to open on May 12, 1984 in conjunction with the 1984 Louisiana World Exposition, and will be located on the Expo site. The tower will be privately operated during the Expo and afterward as a commercial venture serving the extensive recreation and broadcast industries in New Orleans.

The Tower of New Orleans, Inc. is in the process of acquiring a 57,860 square foot site for the tower on the southwest corner of St. Joseph and South Front Streets. In addition to being within the Expo grounds, the site benefits from its excellent proximity to the new convention center, downtown New Orleans, and the Vieux Carre. The tower has been the subject of extensive architectural and engineering planning, leading to an aesthetically pleasing yet functional structure of substantial dimensions. As presently designed, the tower will reach a height of 1,200 feet, some 216 feet higher than the Eiffel Tower, and contain 21 levels of space for recreation and broadcast facilities. Recreational facilities will include observation decks, restaurant, lounge, night club, specialty retail, and an electronic games parlor. The maximum height for observation will be 888 feet, while the main restaurant will be located at the 510 foot level.

In conjunction with the inauguration of the physical planning work, The Tower of New Orleans, Inc. deemed it appropriate to assess the project's attendance-generating capability, to analyze space and capacity requirements for each of its major facilities, and to forecast financial performance. Harrison Price Company was retained in October 1981 for this purpose.

Following this brief introduction, Section II of the report presents a summary of project findings and conclusions. Section III analyzes available market support for the tower, and Section IV reviews attendance patterns and other measures of

performance at selected towers in North America. Section V derives planning parameters for the major systems and facilities contained within the tower based upon expected levels of attendance, and Section VI concludes the report with an analysis of the tower's financial performance.

This study was conducted by Nicholas S. Winslow under the administrative supervision of Harrison A. Price, President of Harrision Price Company. Valuable contributions to the research were made by the principals of Tower of New Orleans, Inc.; Mr. Petr L. Spurney, Executive Vice President and General Manager of Louisiana World Exposition, Inc.; and William J. Mouton, Kenneth Kipping, Edwin C. Gleason, and Ross W. Becker, the project's architects and engineers, in association with Ron Filson, Dean, School of Architecture, Tulane University.

Section II

EXECUTIVE SUMMARY

New Orleans is eminently capable of supporting and sustaining a visitor attraction and broadcast facility such as the proposed New Orleans Tower. Primary, secondary, and tertiary resident markets totaling 5 million persons, together with a tourist base estimated to reach 9 million by 1984, provide a sound base of potential market support. The 1984 Louisiana Exposition, with an attendance forecast of 11 million persons during its 188-day run, will provide an even stronger base during the tower's first year of operation.

The tower is to be located on a 58,000 square foot site at the intersection of St. Joseph and South Front Streets. The site is ideal in that it is within the grounds of the Louisiana Exposition, immediately across the street from the entrance to the new New Orleans convention center being built in conjunction with the expo, and easily accessible from both the central business district and the tourist mecca of Vieux Carre. Special care has been taken to design a structure which is aesthetically pleasing, functionally efficient, and buildable at reasonable cost. At 1,200 feet, the tower will be the tallest structure in New Orleans and destined to become one of the visual symbols of the Crescent City. It is designed as a tripod which sweeps gracefully to its antennae peak, with four distinct clusters of development at varying elevations. A critical analysis of all the tower's operating systems--elevators, restaurants, broadcast rooms, and other facilities--indicate no unreasonable capacity constraints, even under the heaviest loading conditions. Total construction cost, including complete finishing and furnishing, is estimated at $38 million, exclusive of construction financing charges.

Visitor facilities at the tower include two observation decks at the 550 foot elevation, plus a smaller observation deck at 888 feet, a 350-seat restaurant and 126-seat lounge, a 500-seat night club, specialty retail space, and a games arcade. These facilities will be serviced by three elevator systems--a six-unit group shuttling from the base to the 200-foot level, a group of three scenic elevators running up the outside of the tower legs from 200 feet to 550 feet, and a single

small elevator for taking visitors to the upper observation deck at 888 feet. These systems are supported by the necessary freight elevators, fire escapes, etc. Broadcast facilities will be housed in the uppermost five levels of the tower ranging from 899 to 931 feet of elevation. Adequate kitchen, office, and circulation spaces are also provided.

Harrison Price Company estimates that during the Louisiana Exposition, the New Orleans Tower will attract some 3.3 million visitors, of whom 639,200 will be restaurant patrons, and 2.66 million will visit the observation decks. Visitation will fall off during the two years following the fair owing to the high exposure and market penetration during 1984, but will climb to a stable level of attendance of 1.775 million by 1987, of whom 532 thousand will be restaurant patrons and 1.242 million will visit the observation decks. In addition, by 1987 the tower will accommodate the broadcast facilities for one UHF television station, 5 FM radio stations, and be in the process of building a substantial business of renting space for two-way radio transmitters.

Detailed information concerning attendance, per capita spending, and operating expenses for each of the tower's primary economic components is contained in the body of the report. These data are summarized in Summary Table 1, which shows annual gross revenues, gross operating income, net operating income, and cumulative net operating income from 1984 through 1993. As shown in the table, the tower is projected to earn a net operating income of approximately $11.5 million during the expo year of 1984, and total net operating income of $87.7 million through 1993.

Summary Table 1

RECAP OF TOWER OPERATING PERFORMANCE
(1984-1993)

Year	Gross Revenue ($000)	Gross Operating Income ($000)	Net Operating Income ($000)	Cumulative Net Operating Income ($000)
1984	$ 27,679	$ 15,453	$ 11,495	$ 11,495
1985	18,545	8,158	5,506	17,001
1986	21,103	9,080	6,062	23,063
1987	25,564	11,090	7,430	30,493
1988	27,545	11,849	7,910	38,403
1989	29,771	12,754	8,497	46,900
1990	32,151	13,700	9,102	56,002
1991	34,732	14,740	9,773	65,775
1992	37,404	15,747	10,398	76,173
1993	40,857	17,392	11,549	87,722

Souce: Harrison Price Company.

Section III

AVAILABLE MARKET SUPPORT

The most important prerequisite to successfully establishing any commercial attraction is the size and strength of the market areas from which it will draw. There are two principal sources of market support for the proposed tower: the regional resident market and the New Orleans visitor market. The size of these markets is examined subsequently.

LOCAL RESIDENT MARKET

The experience of established commercial recreation attractions throughout North America repeatedly demonstrates an inverse relationship between attendance at an attraction and distance to it: as distance increases, propensity to attend decreases. A major variable affecting this equation is the attraction's size and scope: people obviously are willing to travel further to visit a Disney World, for instance, than they are to attend smaller attractions providing only an hour or two of entertainment. The analysis to come will demonstrate that towers, although they engage the attention of most visitors for a relatively brief period, usually are so important in scale that they are able to attract visitors from considerable distances. Experience indicates that the area of greatest attendance typically extends for about one hour's driving time, or approximately 50 miles, with secondary and tertiary resident markets extending to 100 miles and 150 miles, respectively. Table 1 shows the projected 1984 population of each of these markets. The primary resident market will contain some 1.5 million residents in 1984, while the secondary market will have 1.6 million residents and the tertiary market about 1.9 million residents. The aggregate resident market thus approximates 5 million persons in total. Of the latter figure, roughly 60 percent is contributed by the State of Louisiana, followed by Mississippi's 30 percent and Alabama's 10 percent.

Table 1

AVAILABLE RESIDENT MARKET
1984

	Total Population (thousands)			
	Louisiana	Mississippi	Alabama	Total
Primary Resident Market (0-50 miles)	1,493	54	--	1,547
Secondary Resident Market (50-100 miles)	836	768	--	1,604
Tertiary Resident Market (100-150 miles)	642	664	553	1,859
Total	1,971	1,486	553	5,010

Source: New Orleans Economic Development Council, Sales Management, and Harrison Price Company

TOURIST MARKET

There is also a large tourist market available to the planned tower. The total volume of tourism to the State of Louisiana (excluding foreign visitation) is highlighted in Table 2, as derived from the National Travel Survey. As of 1977, Louisiana recorded some 14.5 million person-trips, slightly more than half of them (7.4 million) generated by residents of the state and the remainder (7.1 million) generated by out-of-state travelers. Rather a large proportion of total person-trips is represented by pass-through visitors who do not stay overnight in Louisiana (about 5.2 million). A total of 9.3 million visits did involve a stay of at least one night, however, up from 8 million at the time of the 1972 survey. The rate of increase in this overnight segment amounts to 3 percent annually over the 1972-1976 period, a comparatively modest rate of growth that suggests a mature, established tourism industry. The rate of increase in overnight visits by travelers destined elsewhere than Louisiana, it will be noted, has risen by almost 9 percent annually as compared to the slightly more than 2 percent rate calculated for the Louisiana-destination segment. Among other factors, this could reflect the impact of Walt Disney World in Florida, which opened in late 1971 and has had a far reaching impact on travel patterns throughout the eastern United States. It appears that Louisiana has benefited from Florida-bound visitors originating in Texas and other points west or north, for whom the state is a convenient overnight stopoff.

Of greater relevance to this analysis is the volume of tourism to the New Orleans area, presented in Table 3. Estimated visitation for 1972 was determined by the University of New Orleans using National Travel Survey data. The estimate of 4.5 million visits in 1972 was derieed by applying the ratio of New Orleans travel receipts versus total state travel receipts (roughly 56 percent) to the statewide person-trip volume of 8 million. The 1972 figure then was updated by applying the rate of increase in New Orleans travel-related employment between 1972 and 1976 (a total of 30 percent over the period), yielding a 1976 person-trip estimate of 5.8 million. The implied rate of growth over this period was just under 7 percent annually.

Table 2

TRAVEL TO AND THROUGH LOUISIANA
1972-1977

	Total Person-Trips (thousands) 1/	
	1972	1977
All Travel To and Through Louisiana		
Destined to Louisiana	7,147	7,934
Destined to Other States		
Spent One or More Nights in Louisiana	885	1,352
Passed Through Louisiana	na 2/	5,208
Total	8,032	14,494
Travel Originating In Louisiana		
Destined to Louisiana	na	3,611
Destined to Other States		
Spent One or More Nights in Louisiana	na	207
Passed Through Louisiana	na	3,594
Total	na	7,412
Travel Originating Out-of-State		
Destined to Louisiana	na	4,323
Destined to Other States		
Spent One or More Nights in Louisiana	na	1,145
Passed Through Louisiana	na	1,614
Total	na	7,082

na means not available

1/ A person-trip is defined as one person on a trip involving a one-way distance of more than 100 miles from home (one person making three such trips is counted as three person-trips. Excludes foreign visitation.

2/ The 1972 National Travel Survey did not include trips destined outside the state on which there was no overnight stay (trips desinted within the state on which there was no overnight stay, however, were included).

Source: U.S. Bureau of the Census, 1972 National Travel Survey and 1977 National Travel Survey; and Harrison Price Company

Table 3

ESTIMATED VISITATION TO THE
NEW ORLEANS AREA
1972-1984

Year	Total Person-Trips[1/] (thousands)	Average Annual Rate of Increase
1972	4,472	6.9%
1976	5,832	
1980	7,225	5.5
1984	9,000	

1/ Excludes pass-through travel. Includes travel originating in Louisiana as well as out-of-state. Excludes foreign visitation.

Source: University of New Orleans, Application of The Travel Economic Impact Model to New Orleans; and Harrison Price Company

No official estimate of current New Orleans visitation is available, with unofficial estimates centering on a range of 6 to 7 million. The University of New Orelans' earlier work in this field, based on such indicators as travel industry employment, hotel receipts, tourist expenditures on retail merchandise, and so on, strongly suggests that the city's tourist base is expanding more rapidly than that of the state at large. Harrison Price Company estimates that a growth rate of 5.5 percent per year is not unreasonable over the next few years. The total New Orleans tourist volume by 1984, therefore, would amount to approximately 9 million person-trips.

Because 1972 data from the National Travel Survey was the original base for this projection series, there is an indeterminate amount of overlap between genuine tourism and resident market population. That is, the 1972 survey did not distinguish between resident and non-resident travel, as was done in the 1977 survey (refer to Table 2), meaning that the visitor count includes a certain proportion of people living within the 150-mile resident market area described here. However, the survey's definition of a "person-trip" is a journey of more than 100 miles from home. People traveling to New Orleans from points less than 100 miles away, therefore, are at least theoretically not counted as part of the tourist market. This leaves a small area of overlap at the 100- to 150-mile radius. Harrison Price Company does not consider this significant in terms of tower attendance planning, however, and has not attempted to adjust the figures. If anything, the 9 million tourist market projection is conservative in that it excludes New Orleans' reportedly substantial foreign visitor population (for which no reliable estimate is available) as well as pass-through visitors who do not stay overnight.

It is also necessary to reflect the seasonality of the tourist market to provide a basis for monthly attendance and revenue forecasts, which will affect project cash flow and staffing. Table 4 illustrates the monthly distribution of visitor registrations at the New Orleans Tourist Information Center. While only a small proportion of tourists actually registers at the center, they are assumed to comprise a representative sample of the market as a whole. As shown in the table,

Table 4

MONTHLY DISTRIBUTION OF TOURIST REGISTRATIONS IN LOUISIANA AND NEW ORLEANS[1/]
1978

Month	All Centers	New Orleans Center
January	3.9%	8.8%
February	4.7	7.9
March	6.6	12.0
April	5.6	10.9
May	5.5	6.6
June	8.1	7.5
July	13.7	9.6
August	12.7	10.1
September	9.7	7.5
October	9.4	8.4
November	9.9	6.8
December	10.2	3.9
Total	100.0%	100.0%

1/ Voluntary registration at official state tourist information centers.

Source: Louisiana Tourist Commission and Harrison Price Company

tourism to New Orleans peaks during the spring in conjunction with the Mardi Gras celebration, and also rises during the summer vacation months of July and August. As is typical at most non-winter tourist destinations, May and December are low months. Perhaps most significant, however, is that New Orleans tourism experiences less seasonal variation than almost any other destination in the United States. This circumstance arises from the fact that the appeal of the city is largely adult-oriented, and therefore less susceptible to school vacation schedules, and that convention bookings are solid all year. The relatively mild climate of New Orleans further reinforces year-round tourist visitation. The absence of strong seasonal trends is important for the tower because it allows an effective utilization of capacity throughout the year.

1984 LOUISIANA EXPOSITION ATTENDANCE

During 1984, tower attendance and revenue will be substantially affected by the Louisiana Exposition. Harrision Price Company, the economic consultant to the Expo, projects total attendance of 11.0 million, as shown in Table 5. Of the total attendance, approximately 60 percent will be generated by the resident market, and the balance by the tourist market. Monthly attendance at the Louisiana Exposition is shown in Table 6. As shown in the table, the lowest levels of attendance are projected to occur in May and November, during which the Expo opens and closes. The Expo is scheduled to be open 19 days in May and 11 days in November. Peak months occur during the vacation months of July and August.

Based upon the seasonality and volume of attendance noted in Table 6, Harrison Price Company has recommended that the Expo plan for a "design day" attendance of 71,000. ("Design day" is the average attendance on peak days, but does not reflect attendance on absolute peak days.) Assuming that the peak in-grounds attendance is 80 percent of design day, the Expo can expect to have 56,800 visitors on-site during peak periods in July and August--certainly a substantial market base from which to attract tower visitors.

Visitor spending at the Expo site is projected at approximately $17.25 per capita, or a gross of approximately $190 million during the 188-day run.

Table 5

PROJECTED ATTENDANCE FOR THE 1984 LOUISIANA WORLD EXPOSITION

Market Area	1984 New Orleans Population (millions)	Projected Attendance (millions)
0-50 miles	1.547	3.87
50-100 miles	1.604	1.60
100-150 miles	1.859	1.39
Total Resident Attendance	5.010	6.86
Non-Resident U.S. Attendance		3.28
Foreign Tourism		0.86
Total Non-Resident Attendance		4.14
Total Attendance		11.00

Source: Harrison Price Company

Table 6

PROJECTED DISTRIBUTION OF ATTENDANCE AT THE 1984 LOUISIANA WORLD EXPOSITION

Month	Percent Distribution	Monthly Attendance (millions)
May	8.0%	.88
June	14.0	1.54
July	16.0	1.76
August	20.0	2.20
September	20.0	2.20
October	12.0	1.32
November	10.0	1.10
Total	100.0%	11.00

Source: Harrison Price Company

Section IV

DEMONSTRATED PATTERNS OF MARKET SUPPORT

Before attempting to assess the level and timing of attendance that markets analyzed in the preceding section will provide at the subject tower in New Orleans, important insights can be gained through analysis of the experience of other towers in North America. Where appropriate, this experience has been expressed in terms of performance during a world exposition, and afterward.

There are a considerable number of towers throughout the world which have developed as tourist attractions, and an even greater number of tall buildings that have incorporated revolving restaurants and observation decks which are the prime attractions of a tower. To keep the analysis within manageable bounds, this report focuses on three towers in North America to illustrate the drawing power and principles of operation critical to success. Those studied are the Space Needle in Seattle, San Antonio's Tower of the Americas, and CN Tower in Toronto.

SEATTLE'S SPACE NEEDLE

Seattle's Space Needle is a steel structure 602 feet high with an observation level at 518 feet and a 300-seat restaurant at 500 feet. The outside diameter of the restaurant is 94-1/2 feet; the outside diameter of the tower base is 138 feet. The restaurant makes one revolution per hour. Two elevators of 4,500-pound capacity carry 30 passengers each, or a total of 1,400 persons per hour, round trip. Vertical velocity is 800 feet per minute, requiring 43 seconds to reach the top. A slower third elevator, designed for freight, also was used for passengers during Century 21.

Performance During Century 21

The Space Needle was built for and proved to be the most successful single attraction at the Seattle World's Fair. In addition to its own attendance and financial success, the tower played a major role in the exhibition's overall success.

During Century 21's 184-day operating period, the Space Needle recorded attendance of 2,840,000 persons, equivalent to about 30 percent of total exposition attendance. Because many people made multiple visits to the fair but probably did not visit the Space Needle more than once (due to the extremely long waits) it is estimated that some 88 percent of the fair's visitors patronized the tower. The relationships between tower attendance and Century 21 attendance are shown below:

- Century 21

Total Attendance	9,640,000
Total Number of Visitors	3,250,000

- Space Needle

Total Attendance	2,840,000
Percentage of Century 21 Attendance	29.5%
Percentage of Century 21 Visitors	87.5%

To accommodate demand, Space Needle operation was scheduled for a 15-hour day, from 10 a.m. to 1 a.m., everyday during the fair. Special breakfast groups also were accommodated on some days, beginning at 7:45 a.m. In spite of long hours of operation, the interest of fair visitors in the Space Needle was so great that on many days waiting time to go up in the tower was four hours. The long wait was caused by capacity limitations at the restaurant, observation deck, and elevators: the facility had been planned in anticipation of significantly smaller crowds. Fire regulations, furthermore, prevented full utilization of the physical plant. While the tower actually could have accommodated 1,000 persons at once, the maximum crowd permitted was only 750 visitors at one time.

With the operation running at capacity throughout the exhibition season, it is estimated that an average of 15,000 to 16,000 visitors were handled daily. Given the 245 restaurant seats available at that time, [1/] an average stay of one hour and 40 minutes at the restaurant, and non-stop operation throughout the 15-hour day, it is estimated that an average of 2,200 diners were accommodated daily. With only

1/ Restaurant capacity has since been enlarged to 300 seats.

750 persons permitted in the tower at once and the restaurant's 245 seats fully occupied throughout the day, it is calculated that the remaining 505 available spaces on the observation deck turned over 26 to 28 times daily in order to permit the 13,000-14,000 non-diners to enter the tower, implying an average stay of 32-35 minutes. This is consistent with the observations of management who judge that visitor stay from 15 minutes to over an hour, with an estimated half-hour average on the observation deck.

During Century 21 visitor expenditures totaled approximately $6.7 million, as shown in Table 7. About 60 percent of this revenue was generated by restaurant and concession sales, with the remaining 40 percent attributable to tower admission. Admission to the tower was $1.00 for adults and 50 cents for children. Adults composed about 90 percent of all tower visitors during Century 21 and children accounted for about 10 percent, resulting in an average per capita admission charge of 95 cents. With capacity for only about 14 percent of all visitors at the restaurant, food and concession expenditures amounted to only $1.40 per capita, far short of what might have been realized had more space been available. The average restaurant check for fair-time operation was $6.20, including liquor.

Post-Fair Experience

In the year following Century 21, attendance at the Space Needle dropped to 917,000, a sharp contrast with its spectacular attendance achievement of 2.8 million visitors during the fair. As shown in Table 8, the two following years saw attendance drop to a level just above 800,000 visitors annually, a low point in patronage. During the period from 1966 to 1970 attendance averaged about one million visitors per year. Economic reverses in Seattle in 1971 produced an abnormally low attendance record that year, but 1972 witnessed substantial improvement. Since 1972, the Space Needle has averaged 1.1 million visitors per year, bringing total visitation at the attraction to 21 million persons since its opening in 1962. The Space Needle was closed for renovation and the addition of a lower level at the 100 foot elevation in September 1981. As indicated in the table, some 85 to 88 percent of all visitors are adults.

Table 7

VISITOR EXPENDITURES AT THE SPACE NEEDLE
1962

	Admission (elevator)	Restaurant and Concessions	Total
Total Expenditures	$2,696,818	$3,984,256	$6,681,064
Per Capita Expenditure Based on Total Century 21 Attendance	$0.28	$0.41	$0.69
Per Capita Expenditure Based on Total Century 21 Visitors	$0.83	$1.23	$2.06
Per Capita Expenditure Based on Space Needle Attendance 1/	$0.95	$1.40	$2.35

1/ Or attendees, since there was probably a negligible repeat factor in tower attendance during the six months of fair operation.

Source: Economics Research Associates, and Harrison Price Company.

Table 8

ATTENDANCE AT SEATTLE'S SPACE NEEDLE
1963-1972
(Thousands)

Year	Adult	Child	Military	Total
1963	n.a.	n.a.	--	917
1964	689	119	--	808
1965	703	111	--	814
1966	853	117	29	998
1967	929	124	23	1,076
1968	946	127	13	1,086
1969	945	120	13	1,078
1970	868	113	10	991
1971	828	110	9	947
1972	858	120	3	981
1973-1981	n.a.	n.a.	n.a.	1,100 average

n.a. means not available.

Source: Pentagram Corporation, Economics Research Associates, and Harrison Price Company.

Allowing that 1.1 million visitors per year is a normal expectation for the Space Needle, Table 9 calculates market penetration. Repeated surveys by management consistently indicate that an average of about 55 percent of all visitors are local residents, and that the remaining 45 percent are tourists, including residents of nearby British Columbia. Given the relative sizes of these markets, it is estimated that some 25 percent of residents living within 75 miles of the Space Needle and two percent of those living in the area up to 250 miles are attracted each year, and that 15 percent of all tourists are attracted annually.

Management of the Space Needle indicates that about 50 percent of annual attendance occurs during June, July, and August, and that the period between Easter and Labor Day accounts for about 70 percent of the yearly total. Friday evening, Saturday, and Sunday are peak visiting times during the summer season, and waiting lines are common between 6 and 10 p.m. In summer the Space Needle operates from 8:00 a.m. until 1:30 a.m., except on Sunday when a 8:00 a.m. to 12:30 a.m. schedule is observed. From Labor Day to Memorial Day, the Space Needle operates from 11:00 a.m. until midnight. Attendance of 9,000 to 10,000 persons is recorded on the top 20 or 25 days during the year, substantially less than the 15,000-16,000 persons who packed the facility to capacity during Century 21. At present the elevator fee is $1.75 for adults and 75 cents for children (ages 6 through 12), including restaurant patrons. This sometimes causes complaints, particularly since there also is a parking fee.

The Space Needle restaurant is open from 11:00 a.m. to 3:00 p.m. and from 5:00 p.m. to 11:30 p.m. everyday but Sunday, when the hours are 9:00 a.m. to 2:00 p.m. and 4:00 p.m. to 10:00 p.m. Restaurant patrons spend from $12.95 to $21.95 for ala carte entrees, exclusive of the elevator charge. Expenditures for liquor add another $3.00 per capita. It is estimated that 35-40 percent of all visitors are restaurant patrons. Food service also is offered at a 600-square-foot snack bar on the observation level, a facility which runs at a loss in winter but is needed to supplement the usually crowded restaurant in summer. Since opening in 1962, the Space Needle has served 6 million restaurant guests and generated gross revenues of $66 million. Cumulative net profit for the restaurant is $12 million.

Table 9

POST-FAIR ATTENDANCE ACHIEVEMENT OF SPACE NEEDLE IN THE AVAILABLE MARKET

	Estimated Population (millions)	Number of Visitors (thousands)	Percentage of Available Market	Percentage Distribution
Resident Market[1/]				
Within 75 Miles	2.239	550	25%	50%
75 to 250 Miles	3.040	55	2	5
Tourist Market				
Destined for Points Within 75 Miles	3.300	495	15	45
Total	8.579	1,100	13%	100%

1/ A 250-mile radius from Seattle includes all of Washington and parts of British Columbia and Oregon. However, the latter are included in the count of out-of-state tourists rather than resident population.

Source: Seattle World's Fair Corporation, Washinton State Department of Commerce, Economics Research Associates, and Harrison Price Company.

The Space Needle has a 200-square-foot souvenir stand at its base, a 600-square-foot gift shop at the observation level, and a small counter in the restaurant. Management reports that these shops gross an amount equivalent to 18 percent of food and beverage sales. While this amounts to phenomenal sales per square foot of selling space, per capita expenditures are not especially high and undoubtedly could be increased if more selling space were available.

SAN ANTONIO'S TOWER OF THE AMERICAS

Like the Space Needle before it, San Antonio's Tower of the Americas was built as the theme structure for a world's fair--in this case, HemisFair '68. The tower measures 750 feet from ground level to the top of its antenna, and when opened to the public in April 1968, it was the tallest observation tower in North America, a distinction it retained until completion of the CN Tower. The tower has a revolving restaurant with 355 seats at 550 feet; above it at 560 feet is a second restaurant level which accommodates 120 persons and is used for private parties. There are also two observation levels with a combined capacity for 700 persons: an enclosed deck at 579 feet and an open deck at 605 feet. Original planning called for a combined elevator capacity of over 2,000 persons hourly, but the elevator trip interval was underestimated by nearly 50 percent, and actual handling capability proved to be only about 1,250 persons per hour.

Performance During HemisFair

Like the Space Needle before it, San Antonio's Tower of the Americas was the fair's most popular attraction, and it drew an almost identical 30 percent share of fair attendance: 1.97 million Tower tickets were sold compared with total attendance at the fair of approximately 5.5 million. While data are not available on the extent of multiple visiting to the San Antonio exposition, these figures suggest, as in Seattle, that some 80 to 90 percent of all visitors to the fair were admitted to the Tower.

Fair-time performance at San Antonio was similar to that at Seattle in most other respects as well. The Tower of the Americas was operated over a 14-hour period daily, which resulted in an absolute maximum daily handling capacity of 17,000-18,000 persons. Greater in-tower capacity at San Antonio permitted an additional 2,000 persons to visit the attraction daily, despite an operating schedule which was one hour shorter than Seattle's. Demand still was sufficient to produce four-hour waiting lines, and average daily attendance over the fair's 114-day season is calculated at 17,263 persons, indicating operation at maximum capacity at all times. Restaurant patrons accounted for some 16 percent of fair-time attendance at San Antonio, compared with about 14 percent at Seattle.

Post-Fair Experience

Again in common with experience at Seattle, the year after the fair witnessed an extreme drop in activity at the Tower of the Americas. This is a natural result when an extraordinarily large percentage of the population makes a strong effort to attend an attraction during its opening year; a desire to repeat the experience does not develop on a wide scale until at least another season has passed.

A number of other factors also were at work in San Antonio. First, the entire 92-acre HemisFair site was left fenced after the close of the fair and a 25-cent admission was charged for entry to the grounds, a fee which also was imposed on visitors to the Tower. In addition, no parking provisions were made near the Tower, and the walk to it through the deserted fairgrounds was made even more unpleasant by noise and dirt from the demolition of vacant pavilions and by standing pools of water caused by insufficient drainage.

Given these obstacles to attendance, the Tower of the Americas achieved only about 20 percent of its fair-time attendance record during the first year of post-fair operations, significantly less than the 33 percent level experienced in Seattle. Total attendance is shown below:

Year	Attendance
1969-70	431,000
1970-71	563,000
1971-72	590,000

Current attendance patterns were requested from the City of San Antonio, which operates the Tower, but were not received in time for publication. Some insight can be gained, however, from historical performance. Attendance records indicate 35-40 percent of attendance occurs in June, July, and August, and that about 60 percent occurs during the Easter to Labor Day period. Thus, while summer is the peak attendance period in San Antonio, patronage is significantly less concentrated than in Seattle. The reason appears to be that San Antonio's intense summer heat results both in more off-season visiting to the area by out-of-towners, and in a less concentrated pattern of attraction patronage by local residents. No survey has been taken to determine visitor origin at the Tower, but the general observations of management suggest a pattern like the one shown in Table 10 is a reasonably good guess. Market penetration rates of the local resident and tourist markets are somewhat lower than in Seattle, as would be expected, and market penetration of San Antonio's secondary resident population (75 to 250 miles) is minimal. This suggests that the Towers in San Antonio and Seattle are roughly comparable in importance as attractions among their local populace and destination visitors, but that a disparity in income reduces San Antonio's attendance potential somewhat. In their secondary market areas, however, the two towers are perceived quite differently: the Space Needle generates significantly more interest in its area than the Tower of the Americas does. This, in turn, probably is due to the fact that San Antonio's secondary market includes such major cities as Dallas and Houston. Not only are roof-top restaurants available in both cities, but their residents tend to regard San Antonio and its attractions as somewhat provincial.

While local market penetration at the Tower of the Americas is lower than at Seattle, a difference of two percentage points is not really as great as the disparity in income and family size would indicate. This problem appears to have been offset as much as possible by realistic pricing at San Antonio. Current admission to the Tower is $1.00 for adults and 50 cents for children; restaurant patrons pay only 50 percent of the standard elevator fee.

Table 10

POST-FAIR ATTENDANCE ACHIEVEMENT OF THE TOWER OF THE AMERICAS IN THE AVAILABLE MARKET (1973 Estimate)

	Estimated Population (millions)	Number of Visitors (thousands) 1/	Percentage of Available Market
Resident Market			
Within 75 Miles	1.350	270	20.0%
75 to 250 Miles	8.850	130	1.5
Tourist Market			
Within 75 Miles	1.500	200	13.0
Total	11.700	600	5.0%

1/ Assumed based upon partial-year performance

Source: U.S. Bureau of the Census, Economics Research Associates, and Harrison Price Company.

On the top 15 or 20 attendance days of the year, the Tower of the Americas attracts a crowd averaging about 5,500 persons in size. Of these, about 1,500 are restaurant patrons, representing an average turnover of about 4.25 turns for the restaurant's 355 seats. Completely efficient turnover of the restaurant is hampered by the fact that it contains four-top tables only, and has no tables for two.

Restaurant patronage accounts for a larger share of attendance at San Antonio's Tower of the Americas than it does at Seattle's Space Needle, with the result that nearly 90 percent of all visitors are adults. About half of attendance in the summer months is attributable to the restaurant, and over two-thirds of the off-season visitors are restaurant patrons. When surveyed in 1973, the restaurant paid a lease rate to the city of 10 percent on liquor served, 6 percent on food, and provided an employee to staff the restaurant elevator.

The sale of souvenir merchandise at the Tower of the Americas is limited because the tower base is not enclosed. This concession pays a lease rate of 10 percent on gross sales.

TORONTO'S CN TOWER

Perhaps the closest comparable to the New Orleans Tower is Toronto's massive CN Tower--the tallest free-standing structure in the world. The CN Tower is somewhat unique in that it was not built in conjunction with a major exposition or tourist destination, but to satisfy the need for a very tall broadcast tower in the rapidly growing, and rising, Toronto metropolitan area.

At 1,815 feet in height, the CN Tower surpasses both the Ostankino Tower in Moscow and the World Trade Center in New York, and is nearly twice the height of the Eiffel Tower in Paris. The CN Tower has three levels which house visitor facilities. At the base are a pool side lounge where drinks and light snacks are served, a games arcade, fast food services, retail shops, and an assortment of permanent and changing exhibits. In addition, the base houses the ticket sales area, tower offices, and a small theater which offers a motion picture documenting the

construction of the tower. A large pad ranging from 1,122 feet to 1,150 feet elevation contains the major share of the visitor facilities. This pad is accessed by four elevators with a combined, one-way capacity of 1,500 persons per hour. The elevators travel at 1,200 feet per minute. Observation decks are located at the 1,122 foot level (outdoor) and the 1,136 foot level (indoor). The indoor deck can accommodate 600 persons, and also houses "Sparkles", the world's highest disco and lounge. "Sparkles" offers informal food and beverage service during the day, and becomes a disco accommodating 500 persons at night. The 1,150 foot level houses the "Top of Toronto" Restaurant. The restaurant has a capacity of 416 persons (including 40 at the bar) and is open daily for lunch from 11:30 a.m. to 2:30 p.m. Dinner is served from 5:15 p.m. to 10:30 p.m. Monday to Saturday, and until 9:00 p.m. on Sundays. It revolves approximately once every 90 minutes.

The "Space Deck", the highest elevation open to the public, is located at 1,465 feet. It is an observation deck only and is serviced by a single elevator from the indoor observation deck.

The tower also contains numerous levels of electronics and broadcast equipment. The bottom level of the main pad, just below the outdoor observation deck, is a Teflon-coated "collar" which houses microwave transmitters and other equipment. The top three floors of the main pad are devoted to television transmitters, FM transmitters, and the mechanical equipment needed to operate the tower. An antenna, 350 feet high, tops the CN Tower.

CN Tower Performance

Visitor Facilities

The CN Tower has attracted 1.7 million persons annually during its first four years of operation. Of this total, 1.4 million annually visit the observation deck and the "Sparkles" lounge, and 300,000 are patrons at the "Top of Toronto". Approximately 30 percent of those visiting the main observation decks also visit the "Space Deck". Elevation fees are as follows:

Main Observation Levels	Admission Charge 1/
Adults	C $ 3.50
Youths	2.75
Seniors	2.75
Children	1.75
Space Deck	
Adults & Youths	C $ 1.50
Children & Seniors	1.00

1/ Canadian dollars.

Elevation fees are not charged to patrons of the "Top of Toronto". School and other groups receive discounted tickets for elevation of C$3.15 for adults and C$1.25 for children. Attendance by school groups is approximately 100,000 annually. During the peak summer months of June through August, 88 percent of visitors are adults, and the remaining 12 percent are children and senior citizens. Elevation revenues for 1982 are projected at C$4.8 million, or C$3.43 per observation deck visitor, including "Space Deck" elevation revenues.

The "Sparkles" night club is open for lunch and for evening entertainment seven days per week. In the evenings, except Sunday, the elevation charge is replaced by a cover charge, as follows;

Day	Cover Charge
Monday, Tuesday	C $ 2.00
Wednesday, Thursday	3.00
Friday, Saturday	5.00

"Sparkles" 1982 revenues are projected at C$1.6 million, or C$1.14 per observation deck visitor.

The "Top of Toronto", as noted earlier, serves lunch and dinner daily. In addition, a summer brunch beginning at 9:30 a.m., is offered during July and August. The brunch service was added to satisfy the heavy demand on the restaurant's facilities during the summer months. Current year (1982) revenues for the "Top of Toronto" restaurant are projected to total C$6.5 million, or C$21.67 per restaurant diner. There are no elevation fees or other charges for visitors to the "Top of Toronto", as such fees are incorporated into the menu prices. Separate elevation fees were charged when the restaurant originally opened, but met with customer resistance.

The sale of fast food items at facilities in the base of the CN Tower add an additional C$900,000 to the revenue base, indicating a per capita expenditure of C$0.64 by observation deck visitors. In addition, miscellaneous sales of C$1.0 million are projected for 1982, including C$523,000 for merchandise (C$0.37 per observation deck visitor) and C$420,000 for parking. Merchandise sales are one of two concessions at CN Tower, with CN earning 25 percent of the gross. The other concession is the games arcade, which is operated by Conklin Shows. The performance of the games arcade could not be established.

Broadcast Facilities

The CN Tower generates C$1.0 million annually for renting its broadcast facilities to television, FM radio, and specialty communications users. The television broadcast facilities are located on Level 5 of the Skypod (above the "Top of Toronto") and the FM facilities on Level 6 as shown in Figures 1 and 2. The television and FM facilities are separated to minimize interference problems.

A total of six television stations broadcast from CN Tower. The largest facility is operated by CBC (Canadian Broadcasting Corp.), which pays a basic rent of C$100,000 per year. The lowest rents are paid by new UHF stations, which pay C$30,000 plus negotiated trade-outs. Seven FM stations broadcast from CN Tower. Of these, five have formed a consortium, running their signals through a combiner, to minimize operating cost. The FM stations pay an average rent of C$25,000 per

Figure 1

CN TOWER TELEVISION BROADCAST LEVEL

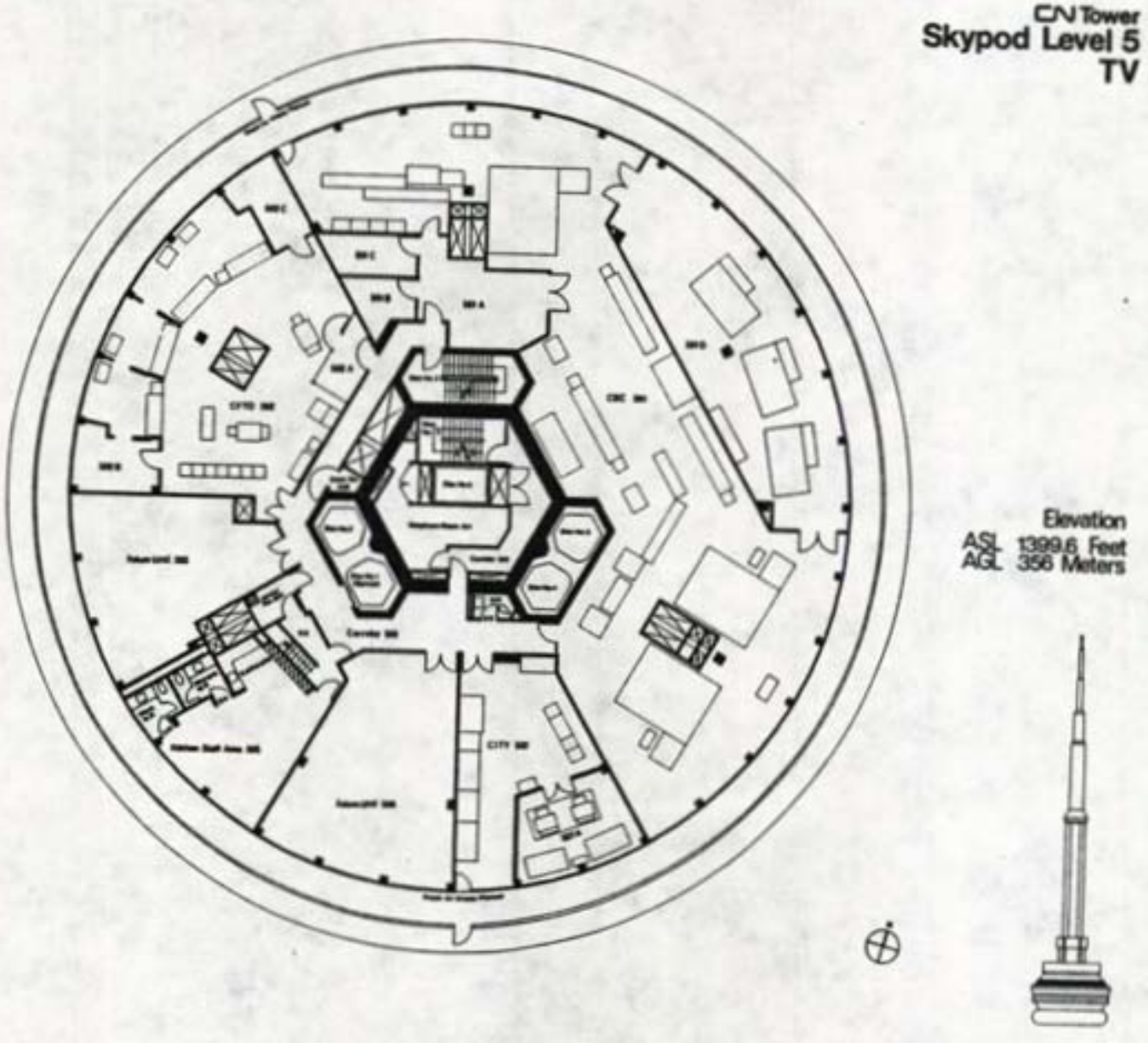
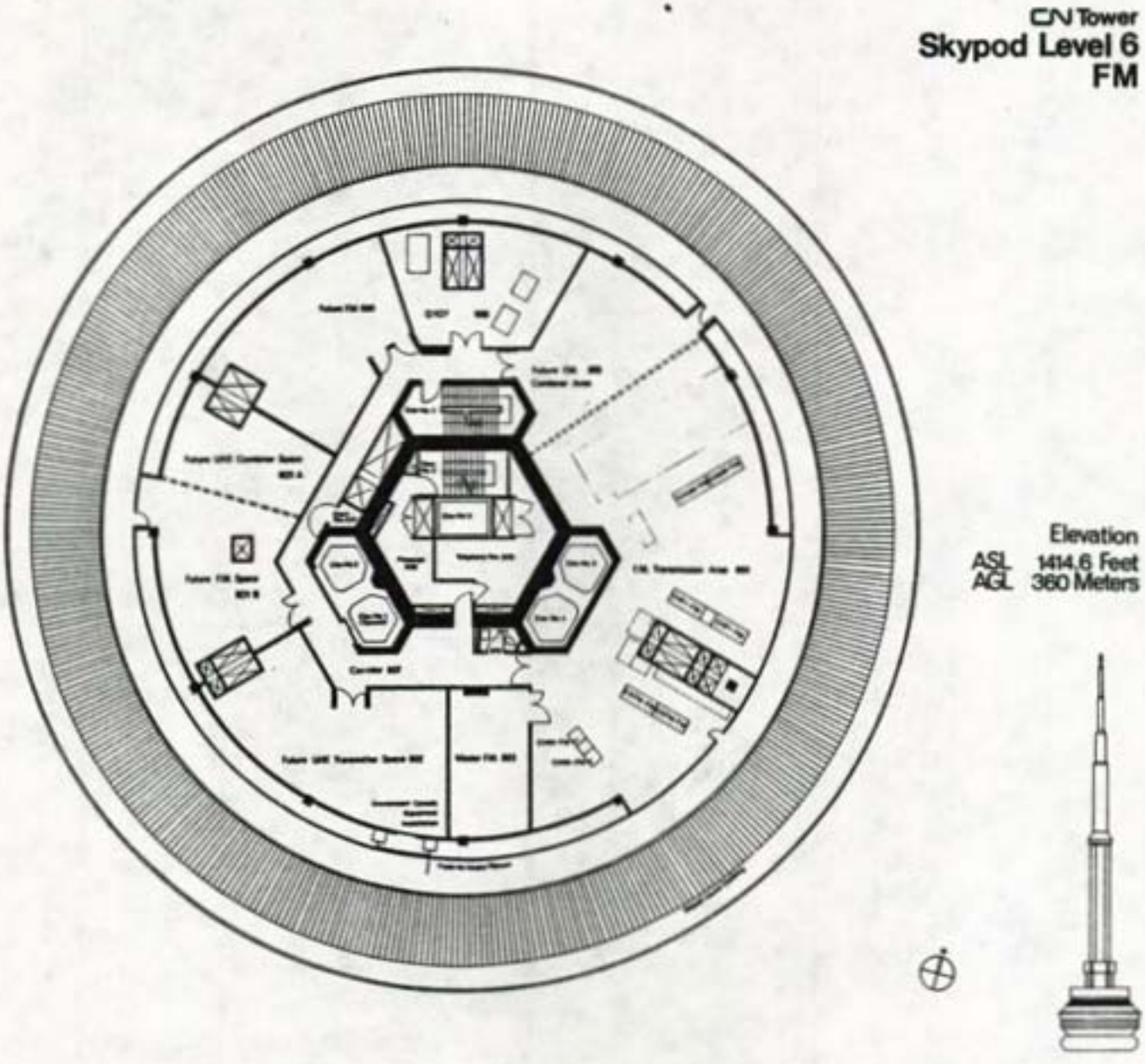


Figure 2

CN TOWER FM BROADCAST LEVEL



year. Specialty communications facilities housed at CN Tower, and their approximate annual rental payments, include: international communications--C$100,000, paging-C$15,000, and car telephone-C$10,000.

Contracts for broadcast space at CN Tower typically run ten years with a ten year option. Rent is established at a floor level for the initial year and is adjusted annually by the amount of inflation indicated in the Toronto Consumer Project Index. The contract is for raw space only. Tenants are required to pay their own operating, maintenance and insurance costs. The cost of electrical power is billed to each tenant pro rata from a master invoice.

Performance Summary

Table 11 summarizes the projected 1982 operating performance of the CN Tower. As shown in the table, CN expects to draw a total attendance of 1.7 million visitors and generate combined revenues of $15.8 million Canadian. It is convenient to visualize the tower's operating performance in terms of its three major revenue generating functions--observation deck visitation, restaurant patronage, and rental of broadcast facilities. Observation deck visitation of 1.4 million persons is projected to generate C$8.3 million, or C$5.93 per capita. Observation deck revenues include elevation charges, "Sparkles", fast food, merchandise, and miscellaneous expenditures. Projected restaurant patronage of 300,000 is expected to generate C$6.5 million, or C$21.67 per capita. The rental of tower space to six television stations, seven FM stations, and miscellaneous other users of the broadcast facilities will generate an additional C$1.0 million.

Table 11

CN TOWER PERFORMANCE SUMMARY 1/

Attendance

Total visitors to observation decks/Sparkles	1.4 million
Total patrons of "Top of Toronto"	.3 million
Total Attendance	1.7 million

Revenues

Expenditure Category	Gross Revenue ($000) 5/	Per Capita Revenue ($) 5/
Tower admissions/elevation	C $ 4,800	C $ 3.43 2/
"Sparkles" night club	1,600	1.14 2/ 4/
"Top of Toronto" restaurant	6,500	21.67 3/
Fast food	900	.64 2/
Sundries		
Merchandise	523	.37 2/
Parking	420	n.a.
Other	57	n.a.
Broadcast	1,000	n.a.
Total Revenues	C $ 15,800	n.a.

n.a. means not applicable

1/ 1982 projection by CN Tower.
2/ Per observation deck visitor
3/ Per "Top of Toronto" Diner. No elevation charge.
4/ Includes cover charge. No elevation charge.
5/ All figures in Canadian dollars.

Source: CN Tower and Harrison Price Company.

Section V

PLANNING PARAMETERS FOR THE NEW ORLEANS TOWER

The New Orleans Tower has been the subject of extensive architectural, engineering and planning studies directed towards the creation of a structure which is aesthetically pleasing, structurally sound, operationally balanced and efficient, and buildable at a reasonable cost. By virtue of its size and its location, the tower will have a profound effect on the skyline of New Orleans; consequently, the developers and their architects have placed special emphasis on designing a tower which will be looked upon with favor by the Crescent's City residents and visitors alike. The resulting design is shown in Figure 3. Working with the design concept developed by the project architect, the entire project team, including Harrison Price Company, worked together to define the project elements or subsystems which belong in the project, their interrelationship, and their size or capacity. The various capacity guidelines developed were based upon balancing the needs of cost-effective engineering and the projected levels of market support. The following paragraphs describe the tower planning guidelines in detail, derive projections of market support for each major project element, and reconcile the planning guidelines to projected facility utilization.

DESCRIPTION OF THE TOWER PLAN

Site

The Tower of New Orleans, Inc. is in the process of securing a 57,860 square foot site on the southwest corner of St. Joseph and South Front Streets. The site, and its proximity to the Louisiana Exposition site, are shown in Figure 4. The assembly of the site involved the acquisition of two pieces of property. The first, a 15,360 square foot parcel, is being acquired from the Illinois Gulf Central Railroad for $25.00 per square foot, or $384,000. The second parcel, a 42,500 square foot

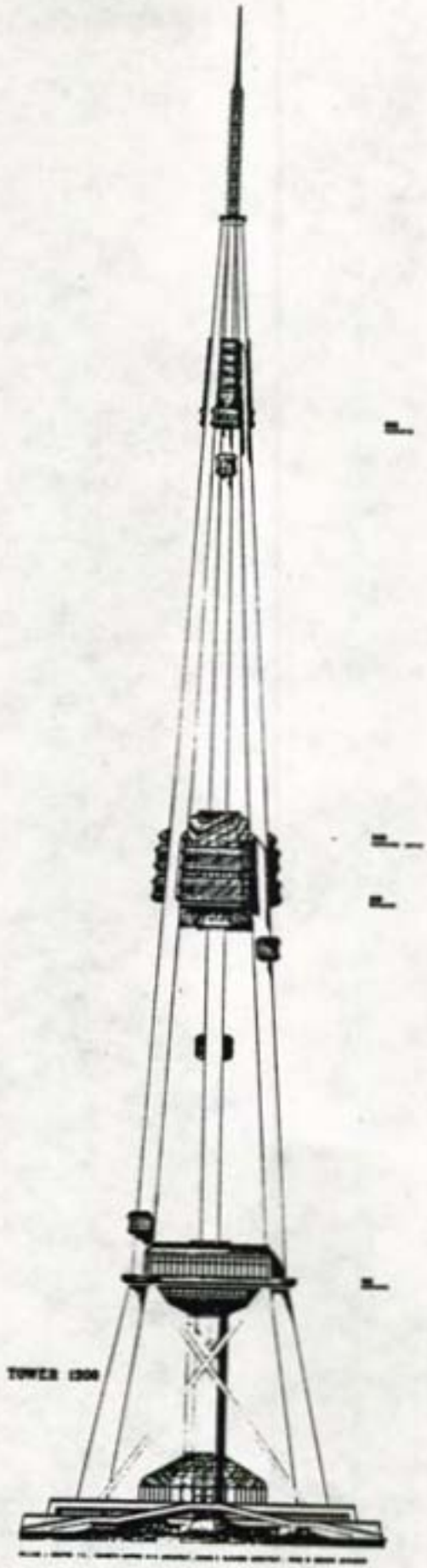


Figure 3

DESIGN CONCEPT FOR THE NEW ORLEANS TOWER

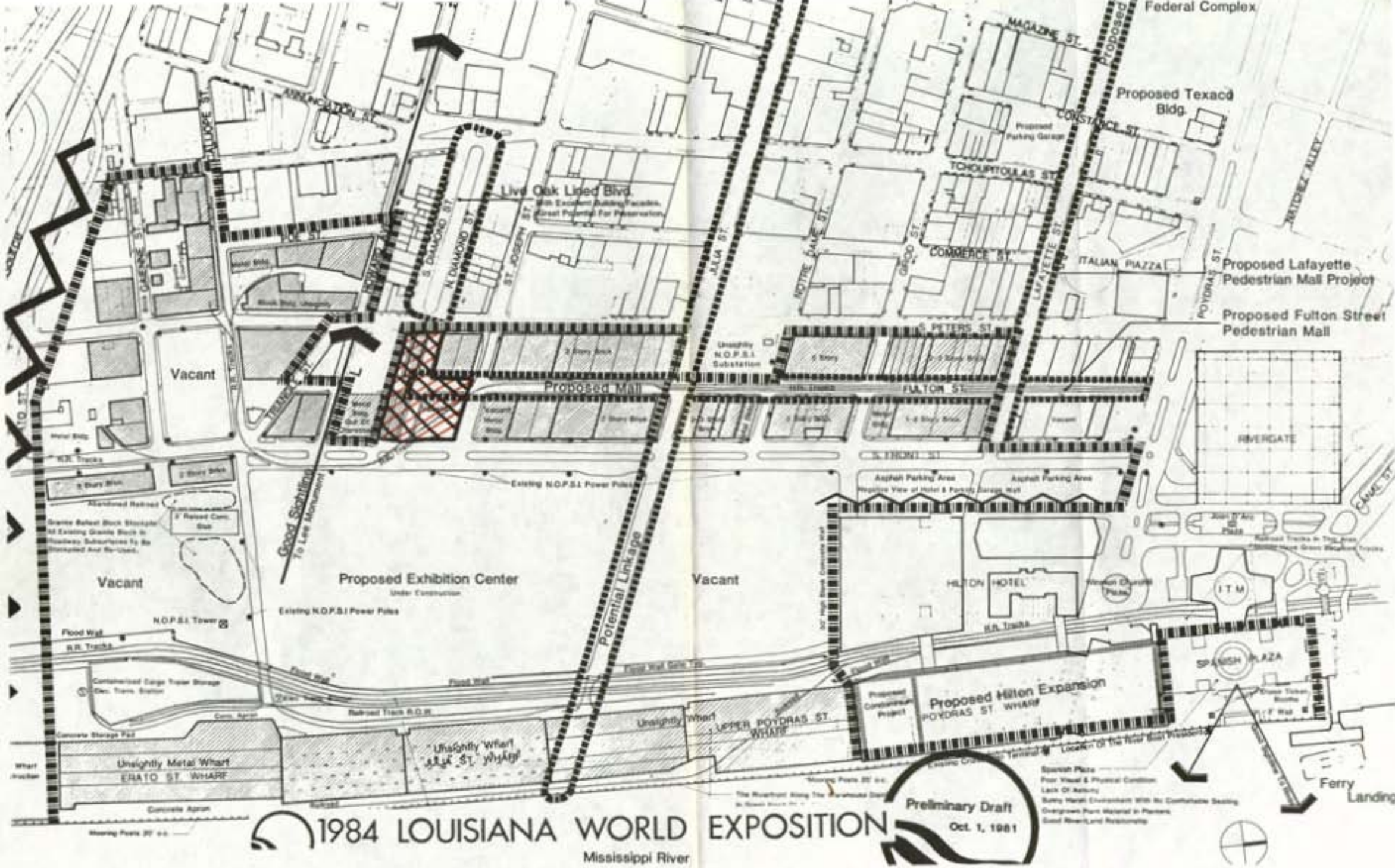


Figure 4

NEW ORLEANS TOWER SITE LOCATION

property owned by the City of New Orleans, can be secured via a swap or lease for $3.00 per square foot, a total of $127,500. Thus, the total site cost is $511,500. It is Harrison Price Company's opinion that the site is very well suited for the development of the tower. Specifically, the proposed site has the following attributes:

- It is within the Louisiana Exposition site and well positioned with regard to access and crowd flow.
- It is within an area which will receive a substantial rejuvenation because of the Louisiana Exposition.
- It does not have the problems of post-Expo re-use associated with the wharf sites originally proposed for the tower.
- It has excellent visibility and accessibility from the new convention center, the hotel and tourist base in the Vieux Carre, and the central business district along Poydras Street. The proposed site for the New Orleans Tower has better proximity to its various markets than any other comparable tower studied in the course of this assignment.
- It will provide an ideal anchor for the Fulton Street Mall.

Plan Description

As shown in Figure 3, the New Orleans Tower is designed as a three-legged structure which gracefully tapers inward from an extensive base complex to its broadcast antennae at the top. It has a maximum height of 1,200 feet above the base. Four clusters of developed space encompassing 21 levels are spread through the tower. These are summarized in Table 12. The cluster near the top of the tower contains six levels, of which five, encompassing a total of 2,340 square feet, will be used to house broadcast equipment. The highest observation deck, with a gross floor area of 714 square feet, will be located at the 888 foot level (Level 16). A freight elevator within the "uptown" facing leg of the tower will service the broadcast levels. Visitor access to the observation deck will be provided by an

Table 12

DEVELOPED AREAS WITHIN THE NEW ORLEANS TOWER

Level Number	Elevation (feet)	Function	Gross Floor Area (square feet)
21	931	Mechanical/broadcast equipment	468
20	923	Mechanical/broadcast equipment	468
19	915	Mechanical/broadcast equipment	468
18	907	Mechanical/broadcast equipment	468
17	899	Mechanical/broadcast equipment	468
16	888	Observation deck	714
15	560	Observation shuttle	2,807
14	550	Enclosed observation deck	4,542
13	535	Night club	5,726
12	520	Restaurant lounge	4,220
11	510	Restaurant	6,407
10	498	Kitchen, storage, and mechanical	3,083
9	488	Corporate office	2,915
8	245	Roof promenade	8,198
7	230	Specialty center	8,463
6	215	Specialty center	8,463
5	200	Game room/operations	4,521
4	35	Gazebo/elevator entrance	23,277
3	20	Offices, gallery, shops	27,000
2	10	Parking	35,000
1	--	Parking	35,000

Source: New Orleans Tower, Inc. and Harrison Price Company.

observation elevator which will move up the interior surface of the "uptown" leg. Emergency stairways will be contained in the other two legs.

The second cluster, ranigng from the 490 to the 560 foot elevations (Levels 9 through 15), include the tower's most important visitor attractions--the main observation decks, restaurant, lounge, and night club. Atop this cluster will be an observation deck of 2,807 square feet from which visitors may enter the shuttle elevator to the upper observation deck. The main observation deck will be immediately below at the 550 foot elevation. A small gift shop, snack bar and storage area will also be located on this level. The observation level will have a gross floor area of 4,542 square feet. Approximately 4,000 square feet will be useable by observation visitors. A night club conceptually similar to the CN Tower's "Sparkles" will be located on Level 13. This attraction, with a gross floor area of 5,726 square feet, will seat approximately 400 people for casual dining during the day and dining, music, and dancing at night. A bar, dance floor and food preparation area will also be contained on this level. Scenic elevators wrapping around each of the tower's three legs will provide the primary access from the 200 foot level to the observation and club levels through the night club level. The night club will not be fully developed until after the Louisiana Exposition closes to assure sufficient observation space during the fair. Current plans call for 1,750 square feet of the night club level to be devoted to observation use during 1984.

Levels 12 and 11, at elevations of 520 feet and 510 feet respectively, contain the main restaurant and its associated lounge. The lounge on Level 12 will have a gross floor area of 4,220 square feet. A circular bar with approximately 24 seats will be located at the center of the lounge, surrounded by a revolving seating area with approximately 126 seats. Stairways will lead to the main eating area on the floor below. The restaurant's eating area, with an elevation of 510 feet, will encompass 6,407 square feet (gross) and accommodate 350 diners. Two levels of dining area will be provided between each of the tower legs. A warming kitchen and food preparation center will occupy the core of the restaurant level. A unique

method of placing the tables and chairs on a moving track will allow the diners to revolve despite the non-circular layout of the main restaurant floor. The three exterior scenic elevators will provide access to the restaurant from the 200 foot level. Immediately below the main restaurant will be a kitchen and storage area covering 3,083 square feet. The functions accommodated on this level will include:

- Kitchen storage
- Dishwashing
- Restaurant offices
- Employee lounge
- Garbage refrigeration
- Refrigerator/freezer storage
- Mechanical equipment

Access to the kitchen on the restaurant level will be gained by means of an internal stairway and two "dumb waiters".

Level 9, at the 488 foot elevation, will house the corporate offices of The Tower of New Orleans, Inc., and a VIP lounge. This level will contain 2,100 square feet of enclosed space and an 815 square foot balcony.

The third cluster of development within the tower will include Levels 5 through 8 ranging in elevation from 200 feet to 245 feet. Level 8 will contain an open-air promenade deck covering 8,198 square feet. It should provide an exciting view of the Louisiana Exposition during 1984. Levels 6 and 7 will contain a specialty retail complex with a gross floor area of 16,926 square feet. The Tower of New Orleans, Inc. intends to finish approximately one-fourth of this space for circulation, and make the balance available to retail tenants. An arcade of 4,521 square feet featuring electronic games and similar amusements will be located on Level 5. Access to the "200 foot" cluster will be accommodated by a group of six elevators running inside a shaft extending from the center of the tower's triangular

base to the specialty retail level. At this point, visitors will be distributed to the scenic elevators on the three tower legs for the trip to the restaurant and observation levels.

The cluster at the base of the tower will contain four levels to an elevation of 35 feet. Level 5 will contain a 23,277 square foot glass gazebo built around the central core elevator shaft. The entrance to the core elevators will be on this level. Level 3 will contain the tower's administrative offices of approximately 10,000 square feet, plus 17,000 square feet which can be used for commercial activities. Exterior ramps and walkways from the base will provide access to Levels 3 and 4. Levels 1 and 2 are reserved for parking, although their development and use for this purpose are not certain at this time. The development of two floors of 35,000 square feet each of structured parking would accommodate approximately 175 cars. Peripheral land outside the tower footprint could accommodate an additional 71 cars if needed, bringing the potential parking capacity to 246 cars. During the Louisiana Exposition, 4,000 parking spaces will be provided under the Mississippi River Bridge, two blocks from the tower site. It is Harrison Price Company's understanding that the IC Railroad will continue to operate this area for parking after the fair.

Elevator Capacity

The New Orleans Tower will have three elevator systems for servicing observation deck, restaurant, night club and specialty retail visitors. The size and capacity of each of the systems are derived in Table 13. System 1, built in the core area between the tower base and the specialty center cluster, will contain 6 elevators carrying 1,368 persons per hour each way. System 2, comprised of the scenic elevators on each of the tower legs, will provide transportation for 1,260 persons per hour each way between the specialty center cluster and the observation deck/restaurant/night club cluster. System 3, with an hourly capacity of 250 persons, will provide service from the observation shuttle deck at 560 feet to the top observation deck at the 888 foot elevation. This elevator has a smaller

Table 13

NEW ORLEANS TOWER ELEVATOR SYSTEMS

	System 1	System 2	System 3
Elevations services	Base to 245 feet	245 feet to 560 feet	560 feet to 888 feet
Number of elevators	6	3	1
Elevator speed	500 feet per minute	350 feet per minute	350 feet per minute
Number of persons per elevator	19	70	25
Number of cylces per hour per car	12	6	10
One-way capacity per hour	1,368	1,260	250

Source: The Tower of New Orleans, Inc. and Harrison Price Company.

operating capacity than the other systems to account for the lower demand for visitation to the upper observation deck, for which an extra elevation fee is charged.

In addition to the visitor elevator systems, the tower contains a freight elevator inside the uptown facing leg to bring in food, supplies and materials and to take out trash and garbage.

Estimated Construction Costs

The structural engineer for the New Orleans Tower, Mr. William Mouton, has solicited upset estimates from reliable subcontractors for each major construction element based upon the preliminary design drawings discussed in this report. The resultant estimates for pilings, steel fabrication and delivery, all concrete work, erection, mechanical and electrical service runs, elevators, and exterior skin totaled $37,014,000. It is Mr. Mouton's opinion that a realistic actual construction cost, based upon competitive bids is $32,435,000, and this figure has been incorporated into the analysis. In addition, Mr. Mouton provided a low estimate of $30,284,000. The construction estimate excludes the following items:

- Land
- Parking garage and parking spaces
- FM antennae
- Lightning protection, security sytems, and computer control
- Tenant work and furnishings

As mentioned in an earlier subsection of this report, the land cost is $512,000. Harrison Price Company estimates that the remaining excluded items noted above, not including the parking garage but including all restaurant and night club furnishings and fixtures, and basic tenant improvements for the specialty retail center, will total approximately $5.1 million. Thus, the total cost of site acquisition, construction, finishing and furnishing is estimated at $38,047,000.

PROJECTED ATTENDANCE

The three primary factors governing attendance patterns at the New Orleans Tower--available market support, probable market penetration rates, and capacity of the various tower components--were discussed earlier in this report. The following paragraphs derive projected observation deck visitation and restaurant patronage during the 1984 Louisiana Exposition and the nine years which follow.

Attendance During the Louisiana Exposition

Both the Seattle Space Needle and San Antonio's Tower of the Americas were built in conjunction with world's fairs similar in scope to the Louisiana Exposition. During the 184 days of Century 21, the Space Needle attracted 2.84 million visitors, or 29.5 percent of fair attendance. During Hemis Fair, the Tower of the Americas attracted 1.97 million visitors, or 35.8 percent of fair visitors. In both cases, the tower became the visual symbol of the exposition, thus accounting for the high market penetration rates. In addition, the observation decks and restaurants of both towers operated virtually at capacity during the two expositions. Harrison Price Company believes that the New Orleans Tower, with its exciting design and superb location, coupled with the 11 million attendance projected for the Louisiana Exposition, will achieve a comparable result.

Harrison Price Company projects that the New Orleans Tower will achieve a 30 percent penetration of fair attendance, or 3.3 million observation deck and restaurant visitors during the 188-day run of the exposition. Of this total, 639,200, or 19 percent, will dine in the restaurant, while the balance of 2,660,800 will visit the observation deck. To accommodate such a heavy volume of visitation, both the observation deck and the restaurant will have to operate 15 hours per day. In addition, 75 seats for diners will have to be developed in the restaurant lounge, bringing total seating capacity in the restaurant to 425. Assuming efficient operation, the restaurant should be able to achieve the 8 turns per seat per day experienced by the Space Needle during Century 21, and thus accommodate 3,400 restaurant patrons per day. Further assuming capacity operation during the 188-

day fair, restaurant patronage during the Louisiana Exposition will total 639,200 persons. With an average length-of-stay of 1.75 hours, the restaurant operation will absorb 243 persons per hour of elevator capacity during the fair.

The impact of the 2,660,800 observation deck visitors can best be visualized by assessing capacity requirements during peak periods. Attendance estimates for the Louisiana Exposition indicate that 20 percent of total fair attendance will occur in the peak months of August and September, with little fluctuation in daily attendance during those two months. Thus, peak observation deck demand can be derived as follows:

Attendance during the fair	2,660,800
Peak month attendance (20 percent)	532,160
Peak week attendance (÷ 4.43)	120,126
Peak day attendance (÷ 7)	17,161
Average Hourly attendance	1,144

Peak hourly attendance of 1,144 is also equivalent to hourly elevator demand of 1,144. Peak elevator demand for the restaurant and the observation deck, then, is projected at 1,387 pesons per hour. As shown in Table 13, hourly elevator capacity from the base to the 245 foot level is 1,368, and should not present a problem. The three scenic elevators carrying passengers from 245 feet to 560 feet, however, have an hourly capacity of 1,260, or 92 percent of the capacity required by the demand during peak periods. The expansion of these elevators to a capacity of 77 persons, or an increase in efficiency to 6.6 cycles per hour, will enable this sytem to meet its capacity requirements.

During Century 21, the average length-of-stay at the Space Needle's observation deck was approximately 35 minutes, or the equivalent of 26 turns per day during the 15 hours of operation. Assuming a comparable length-of-stay pattern during the Louisiana Exposition, the observation deck of New Orleans Tower will require an instant crowd capacity of approximately 660 persons. Using a planning factor of 12 square feet per person, approximately 7,920 square feet of useable

observation deck space will be required during the fair. The present plan for the tower includes 7,349 square feet of observation deck space on Levels 14 and 15; however, only 6,839 square feet will be useable by visitors after space allocations are made for the gift shop, snack bar and rest rooms. Consequently 1,750 square feet of space on Level 13 (the night club level) will be allocated to observation deck use during the fair to provide needed capacity and ease congestion on the two main observation decks.

The upper observation deck on Level 16 (888 foot elevation) is the only tower system which will be substantially capacity bound during the fair, and for which no apparent corrective action can be taken. With 714 square feet of space, the upper deck has an instant holding capacity of approximately 60 persons. Hourly elevator capacity of 250 persons would enable the upper deck to achieve 4.17 turns per hour (an average stay of 14.4 minutes) which is consistent with the experience of the CN Tower; thus the elevator and deck capacities for the upper observation area are in balance. Operation of the upper deck at capacity during the fair will result in a maximum visitation of 3,750 persons per day (250 x 15), or a total attendance of 705,000 during the fair. This attendance would represent 26 percent of all observation deck visitors. The experience at CN Tower, however, indicates that 30 percent of observation deck visitors visit the CN's "Space Deck". A comparable attendance pattern at New Orleans would result in total upper deck visitation during the fair of 798,240, or 343 persons per hour during peak periods --well above capacity. It is uncertain whether or not 30 percent of observation tower visitors will want to visit the upper deck during the crush of a world's fair --there is no comparable experience. It is Harrison Price Company's opinion, however, that the upper observation deck's capacity shortfall will not negatively impact the tower's operations during the fair.

Post Fair Attendance

As mentioned in Section IV, both the Space Needle and the Tower of the Americas experienced substantial declines in attendance following the run of their respective world's fairs, then rebuilt attendance to a stabilized level in the three following years. The CN Tower has experienced a constant annual attendance of 1.7 million in its first four years of operations. These facts suggest that towers are capable of achieving and maintaining very stable attendance patterns for long periods of time. Consequently, Harrison Price Company has elected to forecast annual attendance at the New Orleans Tower by first calculating stabilized attendance and then discounting for the years immediately following the Louisiana Exposition.

Harrison Price Company estimates that stable attendance will be achieved in 1987, the third year following the exposition. Table 14 calculates a range of stabilized attendance estimates. In the interest of conservatism, 1984 population and tourism forecasts were used (excluding induced tourism resulting from the Louisiana Exposition), although these market support bases will have grown slightly by 1987. Low, medium, and high attendance levels were projected to provide both "best case" and "worst case" estimates in addition to Harrison Price Company's forecast of probable attendance. The "low" estimate of 1.53 million attendance was based on the actual performance at the Tower of the Americas, which suffers in relation to the New Orelans Tower because:

- The City of San Antonio does not extensively promote the Tower of the Americas. It is assumed that the private ownership of the New Orleans Tower will have a substantial budget for advertising and promotion.
- The Tower of the Americas does not have the exceptional locational attributes of New Orleans Tower.
- San Antonio does not have the extensive tourist activity and infrastructure available in New Orleans.

Table 14

STABILIZED ATTENDANCE FORECAST FOR THE NEW ORLEANS TOWER

Market Segment	Market Size	Market Penetration (%)			Estimated Attendance (000)		
		Low	Medium	High	Low	Medium	High
Primary Resident (0-50 miles)	1,547	20.0%	21.5%	23.0%	309	333	356
Secondary Resident (50 to 100 miles)	1,604	2.0	4.0	6.0	32	64	96
Tertiary Resident (100 to 150 miles)	1,859	1.0	1.5	2.0	19	28	37
Tourist	9,000	13.0	15.0	17.0	1,170	1,350	1,530
Total	14,010	10.9%[1/]	12.7%[1/]	14.4%[1/]	1,530	1,775	2,019

1/ Penetration of total available market.

Source: Harrison Price Company.

It is Harrison Price Company's opinion that stable year attendance of 1.53 million is very unlikely.

For planning purposes, Harrison Price Company recommends the adoption of the "medium" or probable attendance forecast of 1.775 million. This projection compares closely with the actual experience at Seattle, as noted below:

Market Segment	Market Penetration (%) Seattle Actual	New Orleans Probable
Primary resident	25	21.5%
Secondary resident	2	4.0
Tertiary resident		1.5
Tourist	15	15.0
Percent of available market	13%	12.7%

It should be noted that the penetration rates differ slightly, because of the differences in the method of defining market segments. For example, Seattle's primary resident market is defined as the population within a 75-mile radius, while the comparable definition for New Orleans is 50 miles. Similarly, Seattle's remaining resident market is defined as the population in a radius from 75 to 250 miles, while the secondary and tertiary resident markets for New Orleans are defined as the populations within 100-mile and 150-mile radii, respectively. By defining market segments at a closer distance to the New Orleans Tower, and using comparable penetration rates, Harrison Price Company has derived a probable attendance forecast which is somewhat conservative compared to the actual experience of Seattle, and which it considers realistically achievable.

The high attendance estimate was derived primarily for comparative purposes, although it is possible that exceptionally high market interest in the tower could stimulate an attendance level above 2 million. Market penetrations of the magnitude used in the "high" forecast have been achieved in many commercial recreation attractions.

As mentioned earlier, tower attendance in the two years immediately following the Louisiana Exposition will fall below the stabilized projection for 1987 due to a reduced propensity to attend resulting from the extraordinarly high market penetration during the fair. In Harrison Price Company's opinion, the New Orleans Tower will achieve a 1985 attendance of 1.5 million, and a 1986 attendance of 1.6 million. In addition, the tower will continue to draw visitors during the 51 days in 1984 after the fair closes. Harrison Price Company estimates that post-fair 1984 attendance will total approximately 147,000. Thus, total tower attendance for the first 10 operating years is projected as follows:

Year	Attendance (000)
1984 Fair	3,300
1984 Post-fair	147
1985	1,500
1986	1,600
1987-1993	1,775

Seasonality of Attendance

The seasonality of tower attendance is a useful measure in determining peaking characteristics which impact facility sizing and staffing. Table 15 depicts the projected monthly distribution of attendance at the New Orleans Tower by the tourist and resident markets. The distribution of tourist attendance was taken from the 1978 survey of the New Orleans Tourist Information Center shown in Table 4. The distribution of attendance by the resident market was based upon Harrison Price Company's experience of resident market propensity to attend local attractions of comparable scope which are largely insensitive to weather conditions. Table 16 derives monthly attendance by market segment by applying the distributions shown in Table 15 to the market sizes shown earlier in this report. As shown in the table, tower attendance is projected to peak in March with total attendance of 200,700, or 11.3 percent of the annual total. April, July, and August

Table 15

MONTHLY DISTRIBUTION OF NEW ORLEANS TOWER VISITATION BY MARKET

Month	Monthly Attendance Distribution (%) Tourist Market	Resident Market
January	8.8%	6.9%
Febraury	7.9	7.9
March	12.0	9.1
April	10.9	9.1
May	6.6	6.9
June	7.5	9.0
July	9.6	9.1
August	10.1	9.1
September	7.5	6.9
October	8.4	7.9
November	6.8	9.1
December	3.9	9.0
Total	100.0%	100.0%

Source: Harrison Price Company

Table 16

PROJECTED MONTHLY ATTENDANCE
AT THE NEW ORLEANS TOWER
(1987)

Month	Monthly Attendance (000)			Percent Distribution
	Tourist	Resident	Combined	
January	118.8	29.3	148.1	8.3%
February	106.6	33.6	140.2	7.9
March	162.0	38.7	200.7	11.3
April	147.3	38.7	186.0	10.5
May	89.1	29.3	118.4	6.7
June	101.2	38.2	139.4	7.8
July	129.6	38.7	168.3	9.5
August	136.4	38.7	175.1	9.9
September	101.2	29.3	130.5	7.4
October	113.4	33.6	147.0	8.3
November	91.8	38.7	130.5	7.3
December	52.6	38.2	90.8	5.1
Total	1,350	425.0	1,775.0	100.0

Source: Harrison Price Company.

are also anticipated to receive particularly heavy attendance. The only weak month of the year is projected to be December, with a total attendance of 90,800, or 5.1 percent of annual attendance. The monthly distribution shown is very even for commercial attractions of this nature, due to the strong, year-round character of the New Orleans tourism industry.

Observation Deck and Restaurant Patronage

Given the high interest in restaurant dining by both residents and tourists in New Orleans, the plans to create an exceptional restaurant in the tower, and the experience at both the Space Needle (where 28.6 percent of all visitors are restaurant patrons) and the CN Tower, Harrison Price Company estimates that 30 percent of all visitors to the New Orleans Tower will utilize the restaurant facilities. Applying this distribution to post-fair visitation projections yields observation deck and restaurant patronage estimates as follows:

Year	Restaurant Patronage (000)	Observation Deck Visitation (000)
1984 Post-fair	44.1	102.9
1985	450.0	1,050.0
1986	480.0	1,120.0
1987-1993	532.5	1,242.5

Restaurant patronage of 532,500 annually from 1987 on translates into an average of 29.25 turns per week, or an average of 4.18 turns per day. While this is a sign of a heavily patronized restaurant, it is an achievable level given the attraction of the tower, and assuming that the restaurant is perceived by the public as attractive, well managed, and offers fair value in the cuisine served.

Restaurant and Observation Deck Peak Utilization Analysis

As shown in Table 16, the New Orleans Tower will receive its peak attendance in March, when 200,700 restaurant and observation deck guests will patronize the facility. This translates into a peak weekly attendance of 43,305, of whom 12,992 will be diners and 30,313 will visit the observation deck. Assuming a peak day of 20 percent of the peak week, on the busiest 4 or 5 days of the year the tower can be expected to serve 2,598 diners, and attract 6,063 observation deck visitors. Restaurant patronage of this magnitude would result in 7.4 turns per day in the 350-seat configuration, or 6.1 turns in the 425 seat configuration used for the fair. In any event, breakfast service and extended hours will be required during peak periods if available demand is to be satisfied. Both the Space Needle and the CN Tower have successfully implemented such programs during periods of heavy visitor activity.

It should be noted that the capacities of the tower's key visitor handling facilities (elevator systems, observation deck space, restaurant and lounge seats, etc.), having been designed to accommodate the extensive crowds during the Louisiana Exposition, will be more than adequate for the levels of attendance forecast for the years following the fair. During peak periods, however, they will be extremely crowded due to the shorter operating day which most likely will prevail after the fair. To minimize negative public reaction associated with long waiting times during peak periods, a well conceived and operated reservations program should be utilized. The extensive retail and activity complex at the base and at the 200-foot level of the New Orleans Tower will mitigate much of the problem associated with waiting for elevation to the higher levels by providing a number of diversions for restaurant and observation guests.

BROADCAST FACILITIES

As noted earlier in this section, Levels 17 through 21 of the tower contain 2,340 square feet of gross floor area for the installation of broadcast equipment. Assuming that the broadcast space is 93 percent efficient, 2,175 square feet are

available for use by broadcast tenants. Further assuming that 20 percent of the available net floor area is required for circulation, a total of 1,741 square feet are available for the placement of equipment. In addition, some space will be available in the legs of the tower for the placement of small transmitter cabinets.

Although broadcasters and other potential users of the tower are unwilling to make firm commitments at this time, surveys by the project team indicated that substantial interest in the tower exists by potential broadcast users. It is Harrison Price Company's opinion that the tower will ultimately have broadcast facilities for 5 FM radio stations, 1 UHF television station, and 225 two-way radio users. The projection for FM use is based upon a survey of existing stations which currently use other broadcast towers for their transmissions. The projection for television use is based upon discussions with two applicants for UHF licenses in New Orleans. Two-way radio use is based upon proposals received from the two dominant firms in the New Orleans market--Motorola and Radiofone.

The amount of space required by these users will depend upon the extent to which the FM stations use a common combiner to minimize the amount of hardware required in the tower. At the CN Tower, for example, 5 of the 7 FM stations have formed a consortium with a combiner and jointly operate a single transmitter. The largest space user will be the two-way radio company. Given current space requirements of 4.5 square feet per transmitter, the 225 two-way radio transmitters will absorb 1,012.5 square feet of broadcast space, leaving 728.5 square feet for FM and television users. In addition, many of the two-way transmitters may be located in the tower legs, thus releasing more space for FM and television use. Thus, the space available, although slightly cramped, will accommodate the apparent demand.

Section VI

FINANCIAL ANALYSIS

In Section VI, the financial performance of the New Orleans Tower is analyzed using the attendance and facility utilization forecasts developed in the previous section, and revenue and expense projections developed in the following pages to derive project net operating income. Throughout the analysis, revenues and expenses are expressed in terms of current dollars beginning in 1984 and inflated at 8 percent annually.

OBSERVATION DECK REVENUES

Harrison Price Company recommends that the New Orleans Tower open in 1984 with an elevation pricing policy of $3.50 for adults and $2.00 for children, and that this policy be maintained through 1986, when prices would be raised by $0.50. It is recommended that prices be held firm during the first three years to build a following and interest in the tower. Thereafter, prices would be raised as inflation dictates. Average per capita elevation revenues for 1984-1986 are estimated at $3.15, assuming that adults comprise 88 percent of observation deck visitors and children the remaining 12 percent, and applying a five percent discount to the total to account for group sales.

As mentioned in the previous section visitation to the upper observation deck during the fair will be limited by capacity to 705,000. Following the close of the exposition, upper deck attendance is expected to be 30 percent of basic observation deck attendance. For planning purposes, Harrison Price Company recommends an average per capita revenue for the upper deck of $1.50 through 1986, increasing by $0.25 every other year thereafter.

Table 17 uses these data to compute observation deck revenues through 1993. As shown in the table, the 188-day period of the Louisiana Exposition provides the greatest single increment of observation deck revenues, $8.381 million.

Table 17

FORECAST OF OBSERVATION DECK REVENUES
1984-1993

Year	Per Capita Elevation Revenue ($)	Basic Observation Deck Attendance (000) 1/	Basic Elevation Revenue ($000)	Upper Deck Attendance (000) 2/	Upper Deck Per Capita ($)	Upper Deck Revenue ($000)	Gross Elevation Revenue ($000)
1984-Fair	$3.15	2,660.8	$8,381	705.0	$1.50	$1,058	$9,439
1984-Post Fair	3.15	102.9	324	30.9	1.50	46	370
1985	3.15	1,050.0	3,308	315.0	1.50	472	3,780
1986	3.15	1,120.0	3,528	336.0	1.50	504	4,032
1987	3.63	1,242.5	4,510	372.8	1.75	652	5,162
1988	3.92	1,242.5	4,871	372.8	1.75	652	5,523
1989	4.23	1,242.5	5,256	372.8	2.00	746	6,002
1990	4.57	1,242.5	5,678	372.8	2.00	746	6,424
1991	4.94	1,242.5	6,138	372.8	2.25	839	6,977
1992	5.33	1,242.5	6,623	372.8	2.25	839	7,462
1993	5.76	1,242.5	7,557	372.8	2.50	932	8,489

1/ Assumes adult charge of $3.50 and child rate of $2.00 through 1986, a $0.50 increase in both rates in 1987, and 8 percent inflation thereafter. Assumes adults at 88 percent and children at 12 percent of total attendance. Per capita revenues discounted by 5 percent to account for group sales.

2/ At capacity (705,000) during Louisiana Exposition, and 30 percent of observation tower attendance thereafter.

Source: Harrison Price Company.

Expenses associated with observation deck revenues are considered a part of the general tower operating expense, and are addressed later in this section.

RESTAURANT REVENUES AND EXPENSES

For 1982, the CN Tower is projecting per capita revenues at the "Top of Toronto" restaurant of C$21.67, or the equivalent of U.S. $19.50. This per capita figure includes the variances between lunch and dinner service, plus the addition of breakfast service during the summer months. It also includes a factored-in elevation charge. Although precise figures for the Space Needle are not available, Harrison Price Company estimates that it achieves a comparable per capita in its restaurant when the separate elevation fee is added. Accordingly, Harrison Price Company has elected to use $19.50 as a 1982 base rate for the restaurant, which includes an allocation for the elevation charge. Inflating the 1982 base at 8 percent annually yields a 1984 base of $22.74. This figure has been discounted by 15 percent for revenues received during the fair to account for the substantial breakfast business and simplified menu required to service the tremendous number of visitors from the fair. Thus, per capita restaurant revenue during the fair was estimated at $19.26. For the period following the Louisiana Exposition, restaurant per capitas are expected to return to the $22.74 base, increasing at 8 percent annually in 1985 and thereafter.

For the purposes of this analysis, it is assumed that The Tower of New Orleans, Inc. will own and operate the restaurant, and the capital costs of finishing, furnishing and providing fixtures for the restaurant are included in the construction budget contained in the previous section. Although both the Space Needle and the CN Tower operate their restaurants with considerable success, the New Orleans Tower may wish to be relieved of this responsibility by leasing the facility or negotiating a management contract for its operation. It is Harrison Price Company's opinion that the project's feasibility would not be adversely affected if the client elected to follow one of these courses.

Since its inception, the Space Needle restaurant has generated an operating profit of 18 percent of sales, excluding any charge-back of restaurant-related elevation revenues. For the purpose of computing restaurant operating income at the New Orleans Tower, Harrison Price Company has taken gross revenue, reduced it by $2.00 per capita to recapture elevation charges, and then taken 18 percent of the balance as income. The elevation recapture charge is somewhat arbitrary and is intended to reflect the basic cost of providing the service. The calculation of restaurant operating revenues and income are shown in Table 18. As shown in the table, the restaurant generates operating income of $1.986 million in 1985, and then begins increasing substantially and patronage builds and per capita revenues increase with inflation. It should be noted that the amount attributable to elevation recapture represents cash flow to the tower and are available to help defray the tower's general operating costs.

NIGHT CLUB

Detailed attendance, revenue and expense projections for the night club are difficult to make at this time because the specific nature of the facility, (disco, live music for young adults, dixieland club, etc.), has not been defined. Using the "Sparkles" facility at the CN Tower as a model, however, the night club can expect to generate revenues of $1.30 per observation tower visitor beginning in 1985,[1/] and an operating margin of 23 percent. Table 19 calculates the night club's operating income using these assumptions. As shown in the table, Harrison Price Company projects the night club to open with gross revenues of $1.365 million and operating income of $314,000, increasing to nearly $3 million of revenues and $698,000 of income by 1993.

1/ It is assumed that the night club will not be open during the Louisiana Exposition.

Table 18

NEW ORLEANS TOWER ANNUAL RESTAURANT OPERATING INCOME
1984-1993

Year	Restaurant Patronage (000)	Average Per Capita Revenues ($) 1/	Gross Restaurant Revenues ($000)	Elevation Recapture ($000) 2/	Operating Income ($000) 3/
1984 Fair	639.2	$19.26	$12,311	$1,278	$1,986
1984 Post-Fair	44.1	22.74	1,003	88	165
1985	450.0	24.56	11,052	900	1,827
1986	480.0	26.52	12,730	960	2,119
1987	532.5	28.64	15,251	1,065	2,553
1988	532.5	30.93	16,471	1,065	2,773
1989	532.5	33.41	17,789	1,065	3,010
1990	532.5	36.08	19,212	1,065	3,266
1991	532.5	38.96	20,749	1,065	3,543
1992	532.5	42.08	22,408	1,065	3,842
1993	532.5	45.45	24,201	1,065	4,164

1/ Base per capita of $22.74 in 1984 discounted during fair to reflect breakfast trade and menu adjustment. Base rate inflated at 8 percent annually after 1984.
2/ At $2.00 per capita.
3/ At 18 percent of gross revenue less elevation charge recapture.

Source: Harrison Price Company

Table 19

NEW ORLEANS TOWER NIGHT CLUB OPERATING INCOME
1985-1993

Year	Observation Attendance (000)	Per Capita Night Club Revenues ($) 1/	Gross Night Club Revenues	Night Club Operating Income ($000) 2/
1985	1,050.0	$1.30	$1,365	$314
1986	1,120.0	1.40	1,567	360
1987	1,242.5	1.52	1,889	434
1988	1,242.5	1.64	2,040	469
1989	1,242.5	1.77	2,203	507
1990	1,242.5	1.91	2,379	547
1991	1,242.5	2.06	2,569	591
1992	1,242.5	2.23	2,775	638
1993	1,242.5	2.41	2,997	689

1/ $1.30 base inflated at 8 percent annually.
2/ At 23 percent of gross revenue.

Source: Harrison Price Company

FAST FOOD AND MERCHANDISE

Based upon the experience at the CN Tower, which has facilities similar to those proposed for the New Orleans Tower, per capita revenues of $0.67 for fast food and $0.40 for merchandise can be anticipated in 1984. For fast food, Harrison Price Company estimates that cost of goods will amount to 30 percent of sales, while labor is estimated at 23 percent and other direct costs at 10 percent, yielding an operating margin of 37 percent. The cost ratio of the merchandise operation is estimated at 60 percent, of which 40 percent represents cost of goods, resulting in an operating margin of 40 percent. In both cases, facility operation by the tower management is assumed. Leasing or subcontracting the operation of the fast food and merchandise facilities will not materially impact project feasibility.

Table 20 derives operating income for both the fast food and merchandise operations. As shown in the table, operating income for both fast food and merchandise peak during the fair, with returns of $660,000 and $426,000, respectively.

SPECIALTY RETAIL

The development plan for the New Orleans Tower includes 16,926 square feet (gross floor area) on Levels 6 and 7, and an additional 17,000 square feet (gross) on Level 3, for specialty retail use. Assuming an efficiency of 80 percent, the tower will have 27,141 square feet of net rentable area for retail tenants. In the interest of conservatism, Harrison Price Company has projected income from the specialty retail area on a fixed rate basis without applying percentage overrides to account for increasing sales. A rental rate for the 188 days during the Louisiana Exposition of $20.00 per square foot is recommended, dropping to $16.00 per square foot after the fair and increasing by 15 percent in three year increments. The rates do not include normal pass-through costs to tenants for utilities, service fees, cooperative advertising, property tax increases, and the like, which are billed independently to the tenant. Normal tenant improvement allowances were included in the construction cost estimate described earlier in this report. Harrison Price Company estimates that the cost of operating the specialty center exclusive of charges billed to tenants will be 10 percent of rental income. Table 21 derives

Table 20

NEW ORLEANS TOWER FAST FOOD AND MERCHANDISE REVENUES AND EXPENSES

Year	Observation Attendance (000)	Per Capita Fast Food Sales ($) 1/	Gross Fast Food Revenue ($000)	Fast Food Operating Income ($000) 2/	Per Capita Merchandise Sales ($) 1/	Gross Merchandise Sales ($000)	Merchandise Operating Income ($000) 3/
1984 Fair	2,660.8	$0.67	$1,783	$660	$0.40	$1,064	$426
1984 Post Fair	102.9	0.67	69	26	0.40	41	16
1985	1,050.0	0.72	756	280	0.43	452	181
1986	1,120.0	0.78	874	323	0.47	526	210
1987	1,242.5	0.84	1,044	386	0.50	621	248
1988	1,242.5	0.91	1,127	417	0.54	671	268
1989	1,242.5	0.98	1,217	451	0.59	725	290
1990	1,242.5	1.06	1,315	487	0.63	783	313
1991	1,242.5	1.15	1,420	526	0.69	845	338
1992	1,242.5	1.24	1,534	568	0.74	913	365
1993	1,242.5	1.34	1,656	613	0.80	986	394

1/ Inflated at 8 percent annually.
2/ At 37 percent operating margin.
3/ At 40 percent operating margin.

Source: Harrison Price Company

Table 21

SPECIALTY RETAIL INCOME AT
THE NEW ORLEANS TOWER

Year	Gross Rental Income ($000) 1/	Operating Expense ($000) 2/	Operating Income ($000)
1984-Fair	$543	$54	$489
1984-Post-Fair 3/	61	6	55
1985	434	43	391
1986	434	43	391
1987	499	50	449
1988	499	50	449
1989	499	50	449
1990	574	57	517
1991	574	57	517
1992	574	57	517
1993	660	66	594

1/ Based on 27,141 square feet of net rentable area t $20.00 per square foot during the fair, and $16.00 per square foot annually thereafter increasing by 15 percent in 3-year increments.
2/ At 10 percent of rental income.
3/ Pro-rated at 51 ÷ 365, or 14 percent of annual rate at $16.00 per square foot.

Source: Harrison Price Company.

operating income for the specialty retail area assuming full lease-up prior to the opening of the Louisiana Exposition. As shown in the table, the specialty center is forecast to generate $489,000 of operating income during the fair, increasing to $594,000 by 1993.

GAMES AREA

Level 5, just below the specialty retail area, is set aside for an arcade featuring video games and other similar amusements. The level has a gross floor area of 4,521 square feet, of which approximately 3,000 square feet would be available for placement of the games. At 15 square feet per game, the arcade would have a capacity of 200 games. Given the largely adult nature of the tower visitor profile, the space allocated to the arcade should be sufficient to meet foreseeable demand, although the incredible growth in the electronic games industry makes firm predictions nearly impossible.[1/] Given the relative uncertainty of the propensity of tower visitors to patronize the arcade in view of the age distribution of visitors as opposed to the increasing popularity of such games as an entertainment form, Harrison Price Company has taken a conservative approach in projecting game room operating income. To this end it was assumed that 20 percent of tower visitors will patronize the game room and in 1984 will spend $1.50 each, increasing at 8 percent per year. Further, it was assumed that the games will be owned, maintained, and operated by a qualified arcade operator, who will remit 35 percent of sales to the tower. The resultant schedule of operating income is shown in Table 22.

BROADCAST OPERATIONS

As noted in the previous section, it is anticipated that the tower will accommodate one UHF television station, five FM radio stations, and 225 two-way radio

1/ In 1981, consumer spending on arcade games exceeded spending for both motion pictures and records.

Table 22

GAME ROOM OPERATING INCOME

Year	Observation Attendance (000)	Game Room Patronage (000) 1/	Per Capita Game Spending ($) 2/	Game Room Gross Revenue ($000)	Game Room Operating Income ($000) 3/
1984-Fair	2,660.8	532	$1.50	$798	$279
1984-Post-Fair	102.9	21	1.50	32	11
1985	1,050.0	210	1.62	340	119
1986	1,120.0	224	1.75	392	137
1987	1,242.5	248	1.89	469	164
1988	1,242.5	248	2.04	506	177
1989	1,242.5	248	2.20	547	191
1990	1,242.5	248	2.38	590	207
1991	1,242.5	248	2.57	638	223
1992	1,242.5	248	2.78	689	241
1993	1,242.5	248	3.00	744	260

1/ At 20 percent of observation deck attendance.
2/ Inflated at 8 percent per year.
3/ At 35 percent of gross revenue from operator.

Source: Harrison Price Company.

transmitters. For planning purposes, it is assumed that the UHF station will begin using the tower in 1985 at an annual rental rate of $100,000 per year, inflated at 8 percent annually. Further, it is assumed that three FM stations will be located in the tower upon its opening, with one additional station being added in both 1985 and 1986. The rental rate for the FM stations will be $3,000 per month in 1984, increasing by 8 percent annually. There are no offsetting costs for the television and FM tenants.

Income from the rental of space for two-way radio transmitters is earned in two ways--site preparation fees and monthly space rental. It is customary for the tower operator to ready the space for a radio tenant, for which a fee of $500 is charged, of which 30 percent is profit. The prevailing rental rate for tower space is $225 per transmitter per month. The only offsetting cost of providing this space is the cost of electricity, which averages $8.00 per transmitter per month. Both Radiofone and Motorola submitted detailed submittals concerning use of the tower for two-way radio communications. The Motorola data are summarized in Table 23, together with the estimated income from the television and FM tenants. As shown in the table, broadcast operations show an operating income of $165,000 in the initial year of 1984, increasing to $1.1 million by 1993.

COMPOSITE OPERATING INCOME

The previous paragraphs in this section have derived operating income for all major tower components. The cost of goods and direct labor expense for each of these components are included in the component operating costs, with the exception of observation deck operations. To develop a forecast of tower net operating income, general tower operating expenses, including observation deck operations, must be estimated. To accomplish this task, Harrison Price Company derived tower operating expense for the stabilized attendance year of 1987 using known data from the CN Tower operating budget, and then applied these costs to each operating year pro rata on the basis of gross revenue. A breakdown of tower operating expenses is shown in the text table below:

Table 23

ESTIMATED OPERATING INCOME FROM BROADCAST OPERATIONS

Year	UHF Income ($000)	FM Station Income ($000)	Two-Way Radio					Broadcast Operations Income ($000)
			Number of Units	Net Site Prep Fee ($000)	Annual Rental Income ($000)	Electri-city ($000)	Net Income ($000)	
1984	--	$ 72	40	$ 6	$ 90	$ 3	$ 93	$ 165
1985	$ 50	156	70	4	162	6	160	366
1986	108	210	95	4	234	8	230	548
1987	117	227	115	3	292	10	285	629
1988	126	245	135	3	346	12	337	708
1989	136	264	155	3	400	14	389	789
1990	147	286	175	3	454	16	441	874
1991	159	308	195	3	508	18	493	960
1992	171	333	215	3	562	20	545	1,049
1993	185	360	225	2	598	21	579	1,124

1/ Half year in 1985 at $100,000 per year, inflating at 8 percent.
2/ Three stations for 8 months in 1984, 4 stations in 1985, and 5 stations in 1986. Base rental of $3,000 per month inflating at 8 percent.
3/ At $500 per box less 70 percent cost.
4/ At $225 per box per month.
5/ At $8.00 per box per month.

Source: Motorola, Inc. and Harrison Price Company.

Expense Category	Estimated 1987 Expense ($000)
General and administrative	$ 700
Marketing and sales	1,050
Operations and maintenance	1,120
Energy	490
Other wages	100
Miscellaneous expense	200
Total	$3,660

General and administrative costs include executive salaries, legal, accounting, and other office expense. Marketing and sales include all sales personnel, including a group sales unit important for restaurant bookings, and paid advertising. Operations and maintenance includes all staff maintenance personnel as well as subcontracts, materials and equipment. Energy includes the estimated cost to heat and cool the enclosed spaces which are not charged to tenants, and power to operate the elevators. Other wages and miscellaneous expesne are essentially contingencies for extraordinary tower operations costs. The total estimated tower operating expense of $3.66 million represents 14.3 percent of gross tower revenue.

Table 24 derives tower net operating income from the individual component analyses presented earlier in this section, and the application of a general tower operating expense factor of 14.3 percent of gross revenue. As shown in the table, operating income during 1984, the year of the Louisiana Exposition, is nearly $11.5 million. It then drops to $5.5 million in the year following the fair before building to $11.5 million again in 1993. Cumulative net operating income for the ten years analyzed is estimated at $87.7 million.

Table 24

NEW ORLEANS TOWER COMPOSITE OPERATING INCOME
($000)

	1984 Fair	1984 Post-Fair	1985	1986	1987	1988	1989	1990	1991	1992	1993
Gross Revenue											
Observation Deck	$ 9,439	$ 370	$ 3,780	$ 4,032	$ 5,162	$ 5,523	$ 6,002	$ 6,424	$ 6,977	$ 7,462	$ 8,489
Restaurant	12,311	1,003	11,052	12,730	15,251	16,471	17,789	19,212	20,749	22,408	24,201
Night Club	--	--	1,365	1,567	1,889	2,040	2,203	2,379	2,569	2,775	2,997
Fast Food	1,783	69	756	874	1,044	1,127	1,217	1,315	1,420	1,534	1,656
Merchandise	1,064	41	452	526	621	671	725	783	845	913	986
Specialty Retail	543	61	434	434	499	499	499	574	574	574	660
Game Room	798	32	340	392	469	506	547	590	638	689	744
Broadcast Operations	165	--	366	548	629	708	789	874	960	1,049	1,124
Total Gross Revenue	$26,103	$ 1,576	$18,545	$21,103	$25,564	$27,545	$29,771	$32,151	$34,732	$37,404	$40,857
Operating Income											
Observation Deck	$ 9,439	$ 370	$ 3,780	$ 4,032	$ 5,162	$ 5,523	$ 6,002	$ 6,424	$ 6,977	$ 7,462	$ 8,489
Restaurant											
Operations	1,986	165	1,827	2,119	2,553	2,773	3,010	3,266	3,543	3,842	4,164
Elevation Recapture	1,278	88	900	960	1,065	1,065	1,065	1,065	1,065	1,065	1,065
Night Club	--	--	314	360	434	469	507	547	591	638	689
Fast Food	660	26	280	323	386	417	451	487	526	568	613
Merchandise	426	16	181	210	248	268	290	313	338	365	394
Specialty Retail	489	55	391	391	449	449	449	517	517	517	594
Game Room	279	11	119	137	164	177	191	207	223	241	260
Broadcast Operations	165	--	366	548	629	708	789	874	960	1,049	1,124
Total Operating Income	$14,722	$ 731	$ 8,158	$ 9,080	$11,090	$11,849	$12,754	$13,700	$14,740	$15,747	$17,392
Tower Operating Expense[1/]	$ 3,733	$ 225	$ 2,652	$ 3,018	$ 3,660	$ 3,939	$ 4,257	$ 4,598	$ 4,967	$ 5,349	$ 5,843
Tower Net Operating Income (Annual)	$10,989	$ 506	$ 5,506	$ 6,062	$ 7,430	$ 7,910	$ 8,497	$ 9,102	$ 9,773	$10,398	$11,549
Tower Net Operating Income (Cumulative)	$10,989	$11,495	$17,001	$23,063	$30,493	$38,403	$46,900	$56,002	$65,775	$76,173	$87,722

1/ At 14.3 percent of total gross revenue.

Source: Harrison Price Company.